



Campus Grids Working Meeting Report

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OSG All Hands
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Campus Grids Working Meeting

- In January a small meeting of technical experts with experience in CG to exchange information, compare implementations, and identify best practices
 - Meeting prompted by discussions during OSG staff retreat in Madison July 09
- Invited experts from GLOW, Purdue, FermiGrid, ClemsonGrid, NYS-grid, UCal
- Others with CG interest – Nebraska, UChicago
- Potential role for vm and Cloud in CG – LBNL



Participants

- Brian Bockelman
(Nebraska)
- Dan Bradley
(Wisconsin)
- Keith Chadwick
(Fermilab)
- Steve Gallo (Buffalo)
- Sebastien Goasguen
(Clemson)
- Rob Gardner (Chicago)
- Sam Hoover
(Clemson)
- John McGee
(RENCI)
- Doug Olson (LBNL)
- Preston Smith
(Purdue)
- Ben Cotton (Purdue)
- Prakashan
Korambath (UCLA)



Campus Grids in the CI Landscape

– Ed Seidel, Feb 2009

Recall Feb 09 OSG AH
(Livingston/LIGO)

OSG



Themes Guiding Discussion

- Global file systems and storage systems
- Seamless user environments
- Role and use of virtual machines and cloud
- Implementation challenges
 - resulting from provincial campus issues, local constraints and priorities



Identified CG Potential Benefits

- Achieve more efficient usage of machines
 - Purdue and GLOW find more efficient usage
 - Dean's perspective: efficiency in support
- Participation in a national community
 - Help leverage local investments
 - Science and technical bridging
- Testing ground for new Grid technologies
 - If something has wild success at a campus, it might be a breakthrough for OSG as well



■ And vice-versa

Identified CG Potential Benefits

- Encourage more efficient and professional system administration
 - Visibility of resource and early fault detector
 - Less downtime, less manual configuration, better use of the resources
- Benefit from collective buying power and decision making
 - Examples where this has been very beneficial have been reported by FermiGrid, Purdue, Clemson and GLOW.



Identified CG Potential Benefits

- Having local CG experts in high throughput computing a plus
 - Helping scientists get started
 - An individual research group may not have the continuity of funds and demand for computing to support such people
 - Making the case for such support at the campus level has succeeded in Nebraska, Purdue, GLOW, Clemson



But there are significant questions

- What role can or should OSG play?
- What incentives for CG & CG-CI?
 - To join resources across a campus
 - To hook into a national CI, eg. OSG
 - Faculty, departmental computing, campus IT
 - Financial arguments for Deans, CIO?
- Towards working sharing environments
 - What missing pieces could OSG provide to catalyze sharing resources



Questions, cont.

- How can potential joiners to a CG readily realize and monitor the potential benefit to their organizations?
- What principles and/or architecture is needed to catalyze sharing or exchange within and across campus grids?
 - CG: Users, research groups, departments
 - Grid: VOs, Gateways, etc
- How best to evaluate and adapt emerging technologies to CG (vm,cloud,next buzz)



CG and OSG

- Making cross-organizational collaborations practical
 - (sharing data and compute power, authenticating users and access priorities)
- Bootstrapping campus grid activity in cases where connection to OSG happens first
- Sharing expertise, best practices, Grid software stacks, documentation and training modules
- Applying OSG bylaws & principles to CG



Key CG Futures

- Campus-wide distributed systems management tools & services
 - Configuration management and monitoring
 - Policy compliance monitoring / audit
 - “Customer relations” management .. trust management
- Grid-wide sharing/trading infrastructure
 - Resource exchange & clearing house
 - Communication if nothing else
 - Incentives for sharing & trading
- Usability – lower all barriers to (guaranteed) success (cycles *and storage*) for users



Conclusions and Outlook

- Ideally we'd like to provide best practice guidance to sites in wishing to connect more resources into OSG – long term
 - Will require much more work, evaluation, development
- We identified some important challenges and barriers as seen from the campus
 - Some of these we believe may be **opportunities** that future-OSG
 - It has to be attractive
- Full report



- <https://twiki.grid.iu.edu/twiki/pub/CampusGrids/WorkingMeetingFermilab/>